DESIGN OF A FOUR-STOREY ACADEMIC BUILDING FOR THE FUTURE NURSING DEPARTMENT IN LA CONCEPCION COLLEGE, KAYPIAN

A Research Proposal

Presented to the Faculty of Civil Engineering Division

La Concepcion College

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science in Civil Engineering

Major in Construction Engineering and Management

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2026

RECOMMENDATION

This is to certify that this research entitled "DESIGN OF A FOUR-STOREY ACADEMIC BUILDING FOR THE FUTURE NURSING BUILDING IN LA CONCEPCION COLLEGE, KAYPIAN," prepared and submitted by Dexter M. Bongalbal, Abigail C. Diocton, Fatima Mae M. Mendoza, & John Christopher C. Peñafiel have been examined and PASSED the Pre-Oral Defense.

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CERTIFICATE OF ORIGINALITY

This certificate demonstrates the fact that the work was original to the researchers, and that no other individual or group has written or published it before. Additionally, it declares that until proper acknowledgement has been given to them, no honors or recognition from other universities, colleges or higher education institutions were claimed here.

On top of that, we claim that our study's intellectual content is the product of our hard work, which required using both simple terminology and efficient presentation methods in addition to the group's original ideas.

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TABLE OF CONTENTS

page

Title page ..... **i**

Recommendation ..... **ii**

Certificate of Originality ..... **iii**

Table of Contents ..... **iv**

CHAPTER 1

The Problem and Its Background

Introduction **1**

Background of the Study **3**

Theoretical Framework **4**

Conceptual Framework **5**

Statement of the Problem **7**

Objectives of the Study **8**

Hypothesis **10**

Significance of the Study **10**

Scope and Limitation **12**

Definition of Terms **14**

CHAPTER 2

Review of Related Literature

Foreign Literature **16**

Local Literature **18**

Foreign Study **19**

Local Study **21**

Synthesis of Review of Related Literature and Study **23**

CHAPTER 3

Research Methodology

Research Design **25**

Sample and Population **27**

Research Instrument **28**

Designing **28**

Survey **29**

Cost Estimation **29**

STAAD and SAP2000 ..... **29**

Data Gathering **29**

Statistical Tool **31**

CHAPTER 1

The Problem and Its Background

Introduction

The Philippines' expanding need for healthcare professionals has put more pressure on educational institutions to upgrade and enlarge their classrooms. According to World Health Organization (WHO, 2020), Southeast Asian countries continue to face growing demand for competent nurses, making the quality of nursing education facilities a crucial factor in preparing future healthcare workers. Higher education institutions must make sure that their physical infrastructure is in line with emerging industry standards and current pedagogical needs as the study by Lomas & Johson (2019) emphasize that learning environments significantly influence students' performance. Nursing profession continues to develop and draw more students. Understanding how important it is to provide a setting that supports high-quality nursing education, La Concepcion College is working to construct a four-story academic building specifically designed to support the expanding Nursing Department and increase its ability to produce graduates who are qualified and prepared for the workforce.

Modern nursing education requires specialized spaces like skills laboratories, simulation rooms, research areas, and flexible classrooms that can adapt to different teaching needs. According to Reilly and Oermann (2020), simulation-based environments play a major role in improving students' clinical skills, critical thinking,

and overall readiness for real-world healthcare practice. Similarly, Al-Zyoud et al. (2020) emphasized that when learning spaces are flexible and well-designed, they promote creativity, collaboration, and better teaching outcomes. Because of this, the design of a new academic building must carefully consider functionality, safety, structure, and environmental comfort while still complying with local building codes. Obilor and Amadi (2018) also found that good lighting, proper ventilation, safety features, and accessible design significantly contribute to students' well-being and overall learning experience. A well-designed space encourages student participation, facilitates experiential learning, and supports the holistic development of nursing students. To prepare students for real-world healthcare settings, it is crucial to address these requirements through a methodical architectural and engineering design process.

The purpose of this study is to create a detailed plan for a four-story academic structure that will house La Concepcion College's future nursing department. Nursing schools must provide basic facilities like labs, lecture halls, simulation areas, and clinical practice spaces in accordance with CHED Memorandum Order No. 15 (2017). The study will evaluate the department's spatial needs, structural requirements, facility provisions, and compliance with regulatory guidelines to ensure that the design satisfies both institutional goals and professional standards in nursing education. To ensure the design meets both institutional goals and professional standards in nursing education, the study will assess the department's spatial needs, structural requirements, facility provisions, and compliance with regulatory guidelines.

Background of the Study

La Concepcion College aims to create an academic building that satisfies both structural and educational requirements in keeping with its mission of promoting academic excellence and developing healthcare professionals capable of serving diverse communities. In addition to meeting the Nursing Department's spatial requirements, a well-designed four-story building will support the campus's long-term growth. The proposed building is anticipated to improve learning efficiency, support faculty needs, and offer a favorable environment for both academic and practical training thanks to careful architectural and engineering design. Therefore, the goal of the study is to design a building that is sustainable, safe, practical, and in line with the future course of nursing education at La Concepcion College.

Theoretical Framework

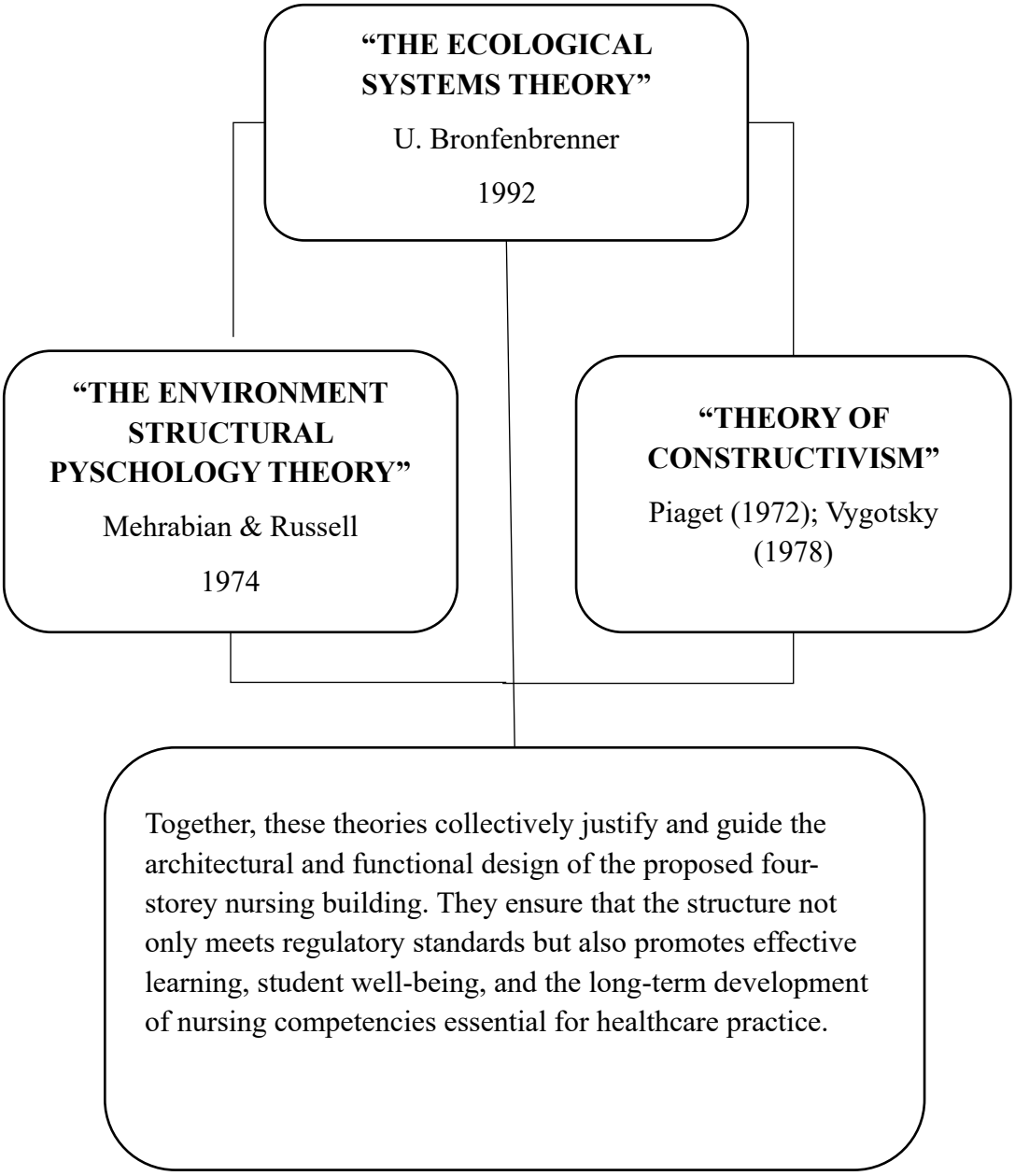
"THE ECOLOGICAL SYSTEMS THEORY"
U. Bronfenbrenner
1992
"THE ENVIRONMENT STRUCTURAL PYSCHOLOGY THEORY"
Mehrabian & Russell
1974
"THEORY OF CONSTRUCTIVISM"
Piaget (1972); Vygotsky (1978)
Together, these theories collectively justify and guide the architectural and functional design of the proposed four-storey nursing building. They ensure that the structure not only meets regulatory standards but also promotes effective learning, student well-being, and the long-term development of nursing competencies essential for healthcare practice.

Figure 1. *Theoretical Framework*

Conceptual Framework

INPUT	PROCESS	OUTPUT
1. What is the demographic profile of the respondents in terms of: 1.1. Gender 1.2. Type of Respondents 1.3. Age 2. How effective and efficient is the proposed building design in terms of: 2.1. Space utilization 2.2. Circulation and accessibility 2.3. Functionality of academic and laboratories area 3. How will the proposed academic building design benefit La Concepcion College in terms of: 3.1. Enhancement of student learning 3.2. Institution expansion and program development 3.3. Improvement of the delivery of education 4. How adequate is the proposed building's technical design in terms of:	1. Needs assessment 2. Architectural Planning 3. Structural Design & Analysis 4. Layout of specialized facilities 5. Prepare architectural floor plans and layouts using AutoCAD to define spaces for classrooms, laboratories, and faculty rooms 5. Prepare a detailed cost estimate covering materials, labor, and provisions to determine financial stability 6. Integration of safety and standards	1. Complete demographic profile of the respondents 2. Cost estimate & economic analysis 3. Final design of a four-storey 4. Academic Building for the Nursing Department of La Concepcion College

4.1. Structural integrity and safety standards 4.2. Compliance with engineering and building code requirements 4.3. Long term durability and load bearing capacity 5. How appropriate is the proposed layout of facilities in terms of: 5.1. Arrangement of classrooms, laboratories and faculty areas 5.2. Comfort, accessibility, and ease of movement of users 5.3. Zoning of academic, administrative, and service spaces 6. How sufficient are the proposed room capacities in terms of: 6.1. Classroom seating capacity relative to projected enrollment 6.2. Laboratory space requirements based on CHED and PRC standards 6.3. Students' density and comfort levels		

Figure 2. *Conceptual Framework*

Statement of the Problem

In this study, the researchers aim to determine the following research problems through the analysis of residents and stakeholders' insight. It seeks to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
    1.1. Gender
    1.2. Type of respondents
    1.3. Age
2. How effective and efficient is the proposed building design in terms of:
    2.1. Space utilization
    2.2. Circulation and accessibility
    2.3. Functionality of academic and laboratory areas
3. How will the proposed academic building design benefit La Concepcion College in terms of:
    3.1. Enhancement of student learning
    3.2. Institutional expansion and program development
    3.3. Improvement of the delivery of education
4. How adequate is the proposed building's technical design in terms of:
    4.1. Structural integrity and safety standards
    4.2. Compliance with engineering and building code requirements
    4.3 Long-term durability and load-bearing capacity.

5. How appropriate is the proposed layout of facilities in terms of:

    5.1. Arrangement of classrooms, laboratories and faculty areas

    5.2. Comport, accessibility, and ease of movement of users

    5.3. Zoning of academic, administrative, and service spaces

6. How sufficient are the proposed room capacities in terms of:

    6.1. Classroom seating capacity relative to projected enrollment

    6.2. Laboratory space requirements based on CHED and PRC standards

    6.3. Student density and comforts levels

Objectives of the Study

The researchers aim to accomplish the following objectives. The result of this study will serve as a guide to design of a four-storey academic building for the future nursing building department in La Concepcion College, Kaypian.

1. How does the demographic profile of the respondents in terms of:

    1.1. Gender

    1.2. Type of respondents

    1.3. Age

2. To determine the effectiveness and efficiency of the proposed building design in terms of:

    4.1. Space utilization

    4.2. Circulation and accessibility

4.3. Functionality of academic and laboratory areas

3. To assess how the proposed academic building design will benefit La Concepcion College in terms of:

3.1. Enhancement of student learning

3.2. Institutional expansion and program development

3.3. Improvement of the delivery of education

4. To evaluate the adequate is the proposed building's technical design in terms of:

4.1. Structural integrity and safety standards

4.2. Compliance with engineering and building code requirements

4.3 Long-term durability and load-bearing capacity.

5. To evaluate the appropriateness of the proposed layout of facilities in terms of:

5.1. Arrangement of classrooms, laboratories and faculty areas

5.2. Comport, accessibility, and ease of movement of users

5.3. Zoning of academic, administrative, and service spaces

6. To determine the sufficiency of the proposed room capacities in terms of:

6.1. Classroom seating capacity relative to projected enrollment

6.2. Laboratory space requirements based on CHED and PRC standards

6.3. Student density and comforts levels

Hypothesis

Ha. There is a significant effect of the proposed four-storey academic building design for the future Nursing Department in La Concepcion College on the learning environment, safety, accessibility, student satisfaction, and academic performance needs of its students.

Ho. There is no significant effect of the proposed four-storey academic building design for the future Nursing Department in La Concepcion College on the learning environment, safety, accessibility, student satisfaction, and academic performance needs of its students.

Significance of the Study

This study is important to several people as it focuses on the Design of a Four-Storey Academic Building for the Future Nursing Department of La Concepcion College, Kaypian is significant because it aligns directly with the school's objective of providing better educational facilities, improving learning conditions, and satisfying the increasing requirements of nursing education. The results of the study will benefit the following.

For the **La Concepcion College Administration** – This study serves as an exhaustive source of information for infrastructure projects within the institutions. It delivers an economically efficient and structurally strong design that is in line with the college's future development objectives. The outcomes can assist the administration

in directing their resources, planning the next expansions, and meeting the building standards set by CHED, DPWH, and other regulatory authorities.

For the **Faculty and Professor/Instructor** -This study aids in establishing a productive, structured, and encouraging workplace for faculty members. Teaching effectiveness and the delivery of nursing education will be improved by having enough faculty rooms, laboratory space, and institutional resources. It also encourages a more cooperative environment where instructors can successfully mentor students.

For the **Future Nursing Learners** -This study is set to be a stepping stone toward the establishment of a friendly, safe, and adequately equipped environment for the nursing students of the present and the future. Nursing students will be the ones to take advantages of the upgraded spaces for learning, laboratories and simulation rooms that mimic real-life situations in the medical field. This will certainly contribute to their knowledge, skills and clinical practice readiness.

For the **Community-** This study will have a great impact on the adjacent community because the improvement of the Nursing Department will bring about a continuous supply of trained healthcare personnel. The growth of the population is directly proportional to the increase in demand for medical services that are both easy to access and of good quality. The new academic building will play a role in the indirect enhancement of healthcare services through the training of nurses who are qualified enough to tackle issues concerning the health of the community, thus, uplifting the standard of health services in the community.

For the **Engineering Students**- This study provides a technical case study about designing multi-story academic buildings from a different perspective. It reveals all the necessary steps of planning, the considerations for the structures, and the good and safe use of the areas. It is thus a reference for engineering students around the world, particularly for those who deal with building design and construction technology.

For **Future Researchers** -This study can be a great help to the next generation of researchers in such areas as the improvement of design methodologies, sustainability practices, and structural innovations. The results will be a valuable reference for the studies on academic building design, nursing facility requirements, and educational

infrastructure development that follows in the future.

Scope and Limitation

This research focuses on the proposed design of a four-storey academic building for the future Nursing Department of La Concepcion College, Kaypian.. The process involves assessing the proposed site within the La Concepcion College, identifying the required features such as the classrooms, skills labs, simulation rooms, and faculty and administrative offices. And preparing conceptual layout of both the architectural and structural plan, and the assessment of the design concerning safety, functionality, and meeting the required educational and building standards. The

duration of the research is five months which includes data gathering, stakeholders' consultation, requirements analysis, and conceptual design and documentation preparation.

The scope of this study is limited to conceptual planning and does not include any detailed engineering computations, complete electrical and plumbing layouts, and cost estimates.

Definition of Terms

To achieve clarity and a better understanding of the study, the researchers defined the following words used in the study.

Accessibility – The ease with which students, faculty, and visitors can reach the use all areas for the building.

Capacity – The maximum number of people and classrooms that can safely accommodate.

Crits – Are structured feedback where students present their works and get constructive comments by teachers and peers.

Efficiency – The buildings ability to make optional use of space, resources, and facilities.

Green Courtyards - They are the floor space of buildings that are decorated with the natural elements like plants, trees, and so on. Along with the relaxing areas, they also offer natural cooling, better air quality, and silenced zones which are important for the well-being of the students located in the nursing, academic etc.

Hierarchy – In a designing of a building, this might just mean organizing the spaces starting from the main (classrooms, laboratories) to the minor important (storage, service rooms).

Open Wings - It's a term that indicates the extension of a building that comes out in the form of 'arms' to create open spaces for ventilation and light to come in naturally.

Pedagogical – It's a term used to describe the teaching methods, approaches, and strategies that help the students to learn effectively.

Stability – The buildings ability to maintain its structural integrity and withstand environment and load stress without risk of collapse.

Studio Hierarchy – In a designing of a building, this might just mean organizing the spaces starting from the main (classrooms, laboratories) to minor the minor important (storage, service rooms).

CHAPTER 2

Review of Related Literature

This chapter presents a review of related literature and studies, following a thorough search done by local and foreign researchers. Those included in this chapter aid familiarizing with relevant and similar information to the current study.

Foreign Literature

According to Makela & Leinonen (2021), state that participatory, functional, and flexible learning environments enhance academic achievement and student participation. This is important for the building design since the classrooms and the labs need to be designed in a way that enables various layouts of furniture, the presence of multipurpose areas and the possibility of changing the teaching methods.

According to HGA Architects (2021), nursing school structures should place a high priority on creating a welcoming and inclusive atmosphere that promote wellbeing and community. Among the design tactics are open wings, green courtyards, wellness cafes, and adaptable lounge spaces supporting social interaction and thus students' well-being. These principles for the four-storey nursing academic building suggest the use of transparent facades, public green spaces, and versatile student meeting spots so that the building can be both a place for learning as well as a source of belonging for both students and faculty.

According to Javaherikhah et al. (2021), the perfect learning environment should be able to physically adjust to the evolving demands of its students. Their study highlights

the importance of developing learning spaces that are adaptive teaching different age and education levels should be through movable facilities that allow various teaching methods, mobility, and collaboration. When designing a nursing academic facility, this is especially helpful since it emphasizes the necessity of adaptable, flexible spaces (for labs, lectures, and simulations) that can adjust to changing curricular practices over time.

According to Stead, Gusheh & Rodwell (2022), the quality of life in architectural education is influenced by a "hidden curriculum" the unexpressed norms, behaviors, and values in architectural schools and they advocate for changes in teaching practices that would be beneficial for both mental health and professional identity. They suggest a reflective, theory-building approach to better comprehend how the design education culture (e.g., crits, studio hierarchy) may reinforce stress and exclusion, and advocate for more inclusive, compassionate educational frameworks.

According to Akoo (2022), the design of nursing educational buildings needs to be integrated with spatial metaphors of care, which includes fluid circulation, daylight and areas that promote contemplation, as these spatial characteristics not only affirm the identity of nurses but also serve the academic purpose of nursing education. Akoo states that the architecture of nursing education (or academic buildings) should also “reflect the spirit of nursing”, which implies that the spaces should convey the values of care through their form, flow, and connectivity rather than simply through their efficient use.

Local Literature

Well-designed educational buildings have a direct impact on students' academic engagement, particularly in higher education institutions that offer specialized programs like nursing, claim Santos and Mendoza (2018). They discovered that well-designed classrooms with ergonomic seating, adequate lighting, and efficient spatial planning enhance students' concentration and lessen fatigue during extended study sessions.

The availability of well-equipped laboratories is crucial for the development of clinical competency in the field of nursing education. Cruz and Pineda (2019) noted that to satisfy CHED's Outcomes-Based Education (OBE) requirements, nursing schools in the Philippines are depending more on simulation labs. According to the results of their study, nursing students perform noticeably better in schools that have specialized simulation facilities, such as labs for basic skills, labs for maternal and childcare, and mock hospital wards. This demonstrates the need for the proposed building to have a full suite of specialized training rooms.

The need for better infrastructure at private colleges is also highlighted in local literature. Many Philippines higher education institutions struggle with antiquated facilities that can't keep up with curriculum changes and enrollment growth, according to Garcia and Alcantara (2020). They stressed the significance of vertical expansion, such as building multi-story academic buildings, especially in urban colleges with constrained land. In order to comply with the National Building Code of the Philippines (NBCP) and overcome space constraints, four-story buildings are now frequently used.

In the meantime, Lopez and Tadeo (2022) investigated how Central Luzon students' satisfaction with health-related programs was affected by physical facilities. According to their research, nursing students favor facilities with easily accessible labs, roomy lecture halls, and designated study spaces. To facilitate both theoretical and practical learning, they stressed the necessity of contemporary ventilation systems, natural lighting, and acoustic control. These choices are very similar to the design guidelines needed for the suggested structure.

Another important topic in Philippine studies is sustainability in local academic architecture. Dela Cruz (2020) noted that to lower energy consumption, contemporary educational buildings are increasingly incorporating climate-responsive features, green materials, and passive cooling systems. In addition to lowering operating costs, these environmentally friendly design features enhance indoor comfort, which is crucial for nursing students who spend a lot of time in skills and lab sessions.

Foreign Study

In a study that Livesay, K. & Finn, J. (2025) investigated the impact of simulation space design on the educational experiences of undergraduate nursing students. The results demonstrated that students favored simulation settings with one-way glass and separate debriefing rooms because these features increased comfort, realism, and engagement. In order to improve learning effectiveness, the study emphasizes how crucial it is to design nursing academic buildings with specialized simulation suites, debriefing spaces, and

Appropriate technology

In a study conducted by Willetts, G., Hood, K., Cross, W., Garvey, L., and Naismith, J. (2025), investigated the implementation of simulation-based instruction in pre-registration nursing programs, with an emphasis on the obstacles and facilitators. In order to identify the variables influencing simulation effectiveness, the integrative review examined numerous studies from different nursing programs. The results showed that simulation greatly enhances students' critical thinking, clinical skills, and practice readiness. However, enduring issues were noted as barriers to complete implementation, including scarce resources, inadequate infrastructure, and inadequate faculty training. In order to ensure the sustainability and efficacy of simulation-based education, this study emphasizes the significance of designing nursing academic buildings with well-equipped simulation labs, debrief rooms, and supportive infrastructure.

Based on Benchadli F. (2023), This study examined the applications and difficulties of simulation in basic nursing education in 2023. In addition to assessing the kinds of simulations used, the study examined obstacles like space limitations, lab availability, and resource constraints. The results highlight the importance of having the right infrastructure for nursing education, including a variety of lab types and adaptable teaching spaces. The study is in favor of designing academic nursing buildings that satisfy both pedagogical and functional requirements.

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resource constraints. The results highlight the importance of having the right infrastructure for nursing education, including a variety of lab types and adaptable teaching spaces. The study is in favor of designing academic nursing buildings that satisfy both pedagogical and functional requirements.

According to Silva G.O., Fonseca L.M.M., Siqueira K.M., et al. (2022) this scoping review examined 26 studies on simulation design in nursing and health education. The study found 19 essential elements, including pedagogical, methodological, and structural components that are necessary for successful simulation. Structural elements emphasized the necessity of debriefing rooms, adaptable learning environments, and well-designed simulation labs. The study emphasizes how crucial it is to design nursing education facilities with specialized and flexible simulation infrastructure.

Alrashidi N., Pasayan E., Alrashedi M.S., et al. (2023) conducted a systematic review that looked at how simulation-based education affected nursing students' self-confidence in clinical practice. Participating in simulation exercises improved students' confidence and preparedness for actual clinical situations, according to the analysis. According to the study, skill and confidence development should be supported by well-designed simulation facilities that mimic clinical settings in nursing academic buildings.

Local Study

Based on Dizon, M. (2018) This study investigated how safe and useful academic facilities can enhance learning environments in higher education establishments. The study

assessed interior design, lighting, ventilation, and structural safety using interviews, environmental evaluations, and student perception surveys. The results showed that well-kept, risk-free, and ergonomically designed buildings greatly improve student comfort, lower stress levels, and encourage constructive learning habits. On the other hand, poorly maintained facilities were associated with higher safety risks and lower engagement. The study highlights how crucial it is to make investments in secure and useful structures in order to promote both institutional efficacy and student well-being.

According to Villanueva & Ramos (2022) it xamined how satisfied nursing students were with their simulation and skills labs, emphasizing the availability of equipment, adequate space, and the general learning environment. Nursing students in various year levels completed a structured questionnaire. Results showed that scheduling conflicts, outdated equipment, and space constraints all contributed to lower satisfaction levels. To promote excellent training and competency development, the researchers advise updating equipment, increasing laboratory space, and enhancing facility management.

According to Reyes (2021), this study ooked at how the lighting, ventilation, noise levels, and seating arrangements in nursing classrooms affected students' comfort and ability to learn. Surveys of students' perceptions and environmental measurements were used to collect data. Results indicated that students' focus and engagement were adversely affected by dim lighting, poor ventilation, and small seats. To create a more favorable learning environment for nursing education, improvements to ventilation systems and classroom design are advised.

Based on HEIs Morales, A., & Reyes, F. (2019) This study evaluated the suitability of academic buildings in a subset of Philippine Higher Education Institutions (HEIs) using CHED-mandated facility standards. The researchers looked at classroom size, lab availability, lighting, ventilation, and accessibility using evaluation checklists, site inspections, and faculty surveys. The findings revealed that although the majority of HEIs satisfy the fundamental structural requirements, many do not have enough space to accommodate expanding student populations, modern equipment, or specialized rooms. The study comes to the conclusion that improving the facilities of academic buildings is crucial for raising the caliber of instruction, promoting program accreditation, and guaranteeing a setting that is favorable to learning.

According to Santos & Dela Cruz (2019), state university's nursing skills laboratories' space utilization and sufficiency. The researchers evaluated room size, layout, equipment availability, and student movement during lab sessions using observational checklists and student surveys. The findings showed that students' hands-on learning time was decreased and skill mastery was impacted by crowded areas and few practice stations. To improve the efficacy of practical nursing instruction, the study suggests expanding laboratory space, rearranging room layouts and improving equipment’s distribution.

Synthesis of Review of Related Literature and Study

Both foreign and local sources highlight the importance of well-designed academic and nursing facilities for improving student performance, safety, and learning. The significance of practical, adaptable, and technologically integrated spaces that uphold

international standards and facilitate contemporary teaching techniques is emphasized in foreign literature. Similar local studies emphasize the need for student-centered, safe, and well-equipped facilities that meet national standards and improve practical skills, such as simulation and skills centers. The rationale for the proposed Four-Storey Academic Building for the Nursing Department at La Concepcion College is supported by these findings, which collectively show that carefully designed, sustainable, and accessible academic buildings greatly enhance educational outcomes.

CHAPTER 3

Research Methodology

This chapter discusses the research methodology applied in the study on the design of a four-storey academic building for the future Nursing Department in La Concepcion College, Kaypian. It presents the research design, selection of respondents, data collection instruments and procedures, and the methods of data analysis used to ensure the accuracy and reliability of the results for the proposed building design.

Research Design

The study uses a descriptive-developmental research design to gather essential data on user needs, architectural standards, and current facility conditions, which help identify the requirements for a proposed four-story Nursing Department building. The descriptive phase collects and analyzes relevant information, while the developmental phase uses this data to create design outputs such as site analysis, floor plans, and structural considerations that follow CHED guidelines and national building regulations. By combining both methods, the study ensures that the proposed building design is evidence-based, functional, and aligned with the long-term academic and structural needs of La Concepcion College's Nursing Department.

Design Process

Conceptualization

The goal of designing the four-story academic structure for La Concepcion College's future nursing department is to provide a modern, safe, and functional learning environment that satisfies nursing students' academic and practical needs. In order to facilitate effective instruction and efficient movement, the concept identifies and arranges key spaces, including faculty areas, laboratories, simulation rooms, and classrooms. In addition to incorporating sustainability features and user-centered planning to ensure a facility that enhances learning, supports future growth, and complements the current campus, the design is guided by CHED standards, building codes, and safety requirements.

Site Analysis

To assess the location's suitability for development, the site analysis for the proposed four-story Nursing Department building at La Concepcion College, Kaypian looked at the site's physical and environmental features. To ensure safe and effective building placement, important elements like soil condition, lot size, existing structures, and campus circulation were evaluated. In order to optimize natural lighting, ventilation, and weather protection, climate factors such as sunlight, wind, and rainfall were also taken into account. Access, utilities, and zoning requirements were reviewed to make sure the design would meet staff and student needs while also adhering to regulations.

User Needs

The planned four-story Nursing Department building must provide secure, practical, and well-equipped learning areas to meet the needs of faculty, staff, and students. For efficient training, students need state-of-the-art classrooms, skill labs, simulation rooms, and study spaces; faculty members need offices and workspaces that facilitate instruction and collaboration. To guarantee a comfortable and effective learning environment, the building must also provide accessible circulation, proper sanitation, and adherence to safety and building regulations.

Design Tools and Software

AutoCAD is used to create accurate 2D plans and layouts, while SketchUp provides 3D models that help visualize the design for better understanding.

Sample and Population

The target population for this research includes the faculty, administrative staff, and Grade 12 students at La Concepcion College, Kaypian. These groups represent individuals who will benefit from the proposed four-storey academic building for the future Nursing Department.

A total of 75 respondents will be selected from this population. These respondents represent the primary future users of the facility and will provide essential insights regarding the design requirements of the proposed academic

building. Their feedback will help identify the necessary learning spaces, laboratory features, and other facilities needed to support nursing education in the planned structure.

Sampling Technique

Purposive sampling will be used in this study. The selected participants are faculty members, administrative staff and Grade-12 students at La Concepcion College, as they are the more likely candidates to enter the Nursing program in the future. Their perspective are vital in identifying the academic, laboratory, and facility requirements needed for the proposed four-storey academic building for the future nursing department. This sampling technique ensures that data is gathered from individuals who can meaningfully contribute to the design considerations of the project. It avoids irrelevant responses and focuses on collecting feedback from those who may become actual users of the proposed building.

Research Instrument

In this study the following instruments are used to gather the data needed for designing the proposed Four-Storey Academic Building, which will accommodate the future nursing department at La Concepcion College, Kaypian.

A. Designing

AutoCAD performs the function of creating highly accurate two-dimensional floor plan layouts, while SketchUp is used for 3D modeling that can visualize the

structure realistically such as classrooms, laboratories, offices. These tools are useful for presenting precise designs that adhere to structural standards.

B. Survey

Questionnaires are conducted with the students at La Concepcion College to gather feedback on the design of a Four-Storey Academic Building for the Future Nursing Department.

C. Cost Estimation

The Excel Sheet serves as a quantitative tool that translates CAD designs into measurable budget data. It systematically computes the cost of materials, labor, equipment, and other project components to support accurate budgeting.

D. STAAD and SAP2000

Structural analysis software is used to test the strength and stability of slabs, beams, columns and foundation. Load combinations, including live load, dead load, seismic load, and wind loa, are created in compliance with the National Structural Code of the Philippines.

Data Gathering

This study employed a quantitative research design to obtain objective, measurable data essential for the development of a Four-Storey Academic Building for the future Nursing Department of La Concepcion College. A validated closed-

ended survey questionnaire was used to gather data in order to assess the requirements, preferences, and expectations of the faculty, administrative staff, and students who will use the facility.

The questionnaire was administered face-to-face using printed copies to ensure direct participation, while an online version was also disseminated to increase accessibility and response efficiency. Regarding the suitability, functionality, and adequacy of the proposed academic building, respondents rated structured closed-ended questions. The researchers were able to collect numerical data that could be methodically examined to direct the design process by using quantitative responses.

To complement the survey data, the researchers utilized advanced architectural and structural software for the building's conceptual and technical development. AutoCAD and SketchUp were employed to generate detailed 2D plans and 3D models, ensuring accurate visualization of the spatial layout, circulation flow, and architectural features of the proposed structure. For structural evaluation, STAAD was used to analyze the load-bearing capacity, stability, and overall performance of key structural components such as beams, columns, and slabs. This analysis ensured that the structure meets essential engineering and safety requirements. The entire planning and design process adhered to the standards and guidelines set by the Commission on Higher Education (CHED) for nursing facilities, the Professional Regulation Commission (PRC) for competency-based facility requirements, and the International Building Code (IBC) for global safety and structural compliance.

Statistical Tool

Percentage and Frequency Distribution

This method is applied to describe the demographic characteristics of the respondents. It shows the number of individuals (frequency) in each category such as gender, age group, length of residency, and Type of respondents. Percentage shows the proportion (%) of each category out of the total number of respondents. This technique helps in analyzing and understanding patterns within the collected data.

Likert scale and Weighted Mean

Likert scale is used to measure the opinions and perceptions of students, faculty, and staff about the proposed design of a four-storey academic building for the future Nursing Department in La Concepcion College, Kaypian. It focuses on how respondents rate the functionality, safety, accessibility, and overall usefulness of the proposed building in supporting nursing education and improving learning facilities.

Rate	Verbal Interpretation	Range
5	Strong Agree	4.20 – 5.00
4	Agree	3.40 – 4.19
3	Neutral	2.60 – 3.39
2	Disagree	1.80 – 2.59
1	Strongly Disagree	1.00 – 1.79

Figure 3 *Likert Scale*

Formula:

$$M = \frac{\sum(F \times w)}{N}$$

Where:

F = Frequency of respondents

w = Weight equivalent

N= Total number of respondents